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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

RAMSEY, KENNETH J

ART UNIT PAPER NUMBER

2879

DATE MAILED: 07/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/896,249

Applicant(s)

PEI ET AL.

Examiner

Kenneth J. Ramsey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 23-46 is/are rejected.
- 7) ☒ Claim(s) 17-23 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: .

DETAILED ACTION

Indefiniteness

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 17-21 recite a gas permeable wall between a gas source and the hermetically sealed enclosure. This is a contradiction of the definition of a "hermetically sealed enclosure" and thus renders the claim indefinite. These claims would be definite if "open space" were substituted for "sealed enclosure" in line 3 of claim 17.

Prior art Rejections

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5-7, 11, 13, 14, 16, 23, 24, 27-29, 31, 32, 34, 35, 37, 39, 40, 43, 45 and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Rakhimov et al 6,005,343 (Rakhimov). Rakhimov discloses a flat panel liquid crystal display comprising a fluorescent back light comprising an electron emitting device 14, a light-emitting device 20 coupled to the lead-in of the electron-emitting device to form a sealed enclosure through which electrons emitted by the electron emitting device (via field emission) pass to strike the light-emitting device to cause it to emit light which produces an image, and inert (He, Ne, Ar, Xe) gas at a partial pressure of at least about 0.1 torr (column 3, lines 21-25) within the sealed space. Thus claims 1, 2, and 5-7 are clearly met. As to claims 11 and 29, "at least about 0.1 torr" anticipates "no more than 0.1 torr" since the ranges overlap. As to claims 31, 32, 34 and 35, the electrons inherently react with the inert gas to cause sputtering (cleaning) of the cathode as indicated at column 2, lines 53-59 of Rakhimov. As to claims 13, 14, 16, 23, 24, 27-29, 37, 39, 40, 43, 45 and 46, at least some the inert gas is inherently supplied to the open space via desorbing of absorbed gas from the solid components of the device as the device is warmed up during operation and such solid components are readable as a gas source impregnated with the gas.

Claims 1-3, 5-8, 10, 13-16, 23-25, 27, 28 and 31-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Cho et al 5,977,706 (Cho). Cho discloses a flat panel display comprising an active area and an auxiliary compartment which houses a getter. The device can be a field emission display (column 1, lines 65-66) or a plasma display (column 25, lines 13-38). In a field emission display the gas pressure within the

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device is typically 10^{-2} torr or less (column 6, lines 31-36) and in a plasma display the gas pressure is at least 1 torr, typically 5 torr to 0.5 atmosphere (column 25, lines 26-28). Cho discloses that the inert gas of a plasma display is typically xenon, neon, helium, krypton, and/or argon (column 25, lines 25-26) but Cho does not disclose the type of gas found in a field emission display. For purposes of this rejection, the disclosure at column 25, is primarily relied upon. In this embodiment it is taught that a plasma is created in the main compartment of the display when the display is operated and that the getter sorbs contaminant gases which enter the auxiliary compartment but does not absorb the inert gases of the plasma display. It is inherent that the contaminant material absorbed by the getter includes contaminant material situated over the electron emitting devices of the display. Note that since there is a reduced pressure in a plasma display, it is inherent that the light-emitting device (portion) of the display is coupled to the electron-emitting portion to form an hermetically sealed enclosure which includes the auxiliary chamber. As to claims 3 and 33, it is inherent that an array of laterally separated electron emissive regions, each comprising at least one electron emissive element, exists between the partition walls of the display. As to claims 10 and 39, the main chamber is read as the open space and the auxiliary chamber is read as the inert gas supply. As to claim 43, it is clear that the supply of inert gas in the auxiliary chamber compensates for any gas ions that lodge in the electron-emitting device to maintain the gas pressure.

Claims 4, 11, 12, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho in view of Konuma and Rakhimov. These claims differ from the

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above portion of Cho relied upon the above rejection by the recitations that the device is a field emission device and by the recitation of partial pressure of the inert gas as being less than, e.g. 10^{-1} torr, or lower. As noted in column 6, lines 31-36 of Cho, the gas pressure in a field emission display is typically 10^{-2} torr or less. Although the gas composition is not disclosed, Konuma, column 5, lines 16-24, teaches that the residual gas components of a field emission device that includes the step of gas cleaning by ion bombardment and gettering, typically are argon or helium. As to the gas pressure, while Konuma specifies a partial pressure of 10^{-6} torr for argon and helium, the patent to Rakhimov, column 3, lines 21-25, teaches a field emission display having partial pressures of helium and argon that are much higher when the emitters are chosen to be of a material more resistant to ion bombardment. Therefore, the specific choice of a emitter material, and a suitable final partial pressure of the helium and argon corresponding to the partial pressures herein claimed, would have involved an obvious optimization of the Cho device base upon the specific requirements of the designer since the pressures are within the range taught by Cho. See Peterson, 315 F.3d at 1330, 65 USPQ2d at 1382 ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); and In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969) (Claimed elastomeric polyurethanes which fell within the broad scope of the references were held to be unpatentable thereover because, among other reasons, there was no evidence of the criticality of the claimed ranges of molecular weight or molar proportions.).


Claims 9 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallace 5,520,563 in view of Cho, Konuma and Rakhimov. These claims specify a location of the getter which is different from Cho. Wallace teaches a field emission device which provides the getter location corresponding to that claim for the purpose of gettering contaminants as they are released into the open space during operation of the display. As shown by Konuma, a major reason for release of contaminants is the ion bombardment of the cathodes due to ionization of the residual helium or argon gas in the display. While Konuma and Wallace specify a lower residual pressure than that claimed, Cho and Rakhimov indicate that the residual pressure may be higher provided that emitters more resistant to ion bombardment are chosen. Therefore, the specific choice of a emitter material, and a suitable final partial pressure of the helium and argon corresponding to the partial pressures herein claimed, would have involved an obvious optimization of the Cho device base upon the specific requirements of the designer since the pressures are within the range taught by Cho. See Peterson, 315 F.3d at 1330, 65 USPQ2d at 1382 ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); and In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969) (Claimed elastomeric polyurethanes which fell within the broad scope of the references were held to be unpatentable thereover because, among other reasons, there was no evidence of the criticality of the claimed ranges of molecular weight or molar proportions.).

Allowable Subject Matter

Claims 17-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not teach or suggest the invention as claimed including providing the reservoir of inert gas comprises a container that has wall through which the inert gas passes (claim 17) or a inert-gas compound (claim 22).

Conclusion

Any inquiry concerning this communication should be directed to Kenneth J. Ramsey at telephone number 703-308-2324.


Kenneth J. Ramsey
Primary Examiner
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